




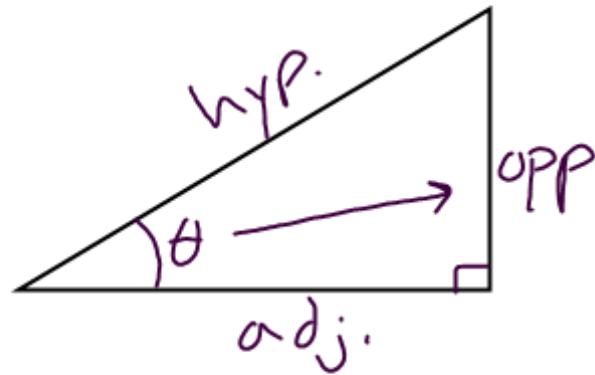
Draw a right triangle with the angle I give you. It is essential that you draw your triangle accurately Use the corner of a piece of paper to draw the right angle and the measure carefully.

ANGLE	$\frac{OPP}{HYP}$ 	$\frac{ADJ.}{HYP}$ 	$\frac{OPP}{ADJ}$ 
10°			
20°			
30°			
40°			
50°			
60°			
70°			
80°			

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$



- To find the ratio of the side, use the trig. function.

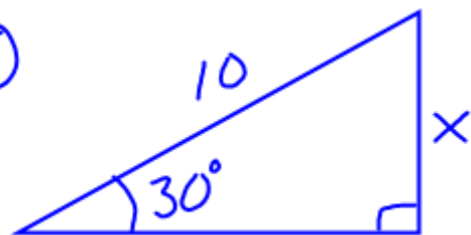
$$\sin 30^\circ = \text{ratio} \left(\frac{1}{2} \right)$$

- To find the angle if you know the ratio, use the inverse trig. functions.

$$\sin^{-1} \left(\frac{1}{2} \right) = \text{angle} (30^\circ)$$

Examples:

①

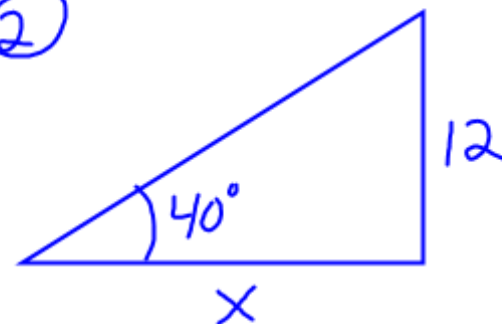


$$\sin 30 = \frac{x}{10}$$

$$10 \cdot \sin 30 = x$$

$$5 = x$$

②



$$x \cdot \tan 40 = \frac{12}{x} \cdot x$$

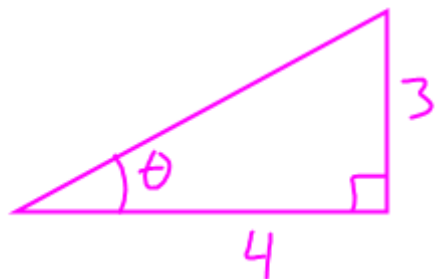
$$x \cdot \tan 40 = 12$$

$$\frac{x \cdot \tan 40}{\tan 40} = \frac{12}{\tan 40}$$

$$x = \frac{12}{\tan 40}$$

$$x \approx 14.3^\circ$$

③



$$\tan \theta = \frac{3}{4}$$

$$\theta = \tan^{-1}\left(\frac{3}{4}\right)$$

$$\theta \approx 36.9^\circ$$

Sect. 12.1

#1-20, do #4, 9, 10, 14 before you leave